TSVYLEV, I.S., inzh.

Tractor-drawn drum-type peat spreader. Torf.prom. 36 no.3:33-34 '59. (MIRA 12:7)

1. Giprotopprom RSFSR.
(Peat machinery)

TSVYLEV, N.A.

Method of calculating rock pressure in horizontal workings. Trudy NPI 113:13-27 '61. (MIRA 15:2)
(Rock pressure) (Mining engineering)

YEGORUSHKIN, V.Ye.; KRASHENENNIKOV, N.A.; RAZMYSLOVICH, I.R.; FEDOROV, F.F.; TSEKHANOVICH, P.V.; TSVYRKUN, N.A.; BUTYLIN, G., red.; KALECHITS, G., tekhn.red.

[Handbook of a tractor driver] Spravochnik traktorista. Minsk, Gos.izd-vo BSSR, Red.sel'khoz.lit-ry, 1959. 578 p. (MIRA 13:3)
(Highway transport workers--Handbooks, manuals, etc.)

SOV/26-59-10-12/51

AUTHOR: Tsyan', Syue-sen' (+)

TITLE: In the Service of National Economy

PERIODICAL: Priroda, 1959, Nr 10, pp 67-69 (USSR)

ABSTRACT: Investigations in the field of mechanics were nearly entirely unknown to Chinese science. Only in 1956 was an independent institute on the basis of a laboratory of mechanics established at the Mathematical Institute of the Chinese Academy of Sciences. During the last three years, a new scientific institution has been developed, in which more than 200 scientific workers are employed, among them Professor Go Yun-khuay+ (aerodynamics), Professor Tsyan' Shou-i+ (mechanics of soil), Professor Lin' Tun'-tszi+ (hydromechanics), and Professor Li Min'-khua+ (theory of ductility). A laboratory for universal measurings was established in 1958. (+) Russian transliteration.

Card 1/2

In the Service of National Economy SOV/26-59-10-12/51

ASSOCIATION: Institute of Mechanics of the Academy of Sciences of the Chinese People's Republic/Peking

Card 2/2

TSYAHKO, N.F., inzh.; AYZENBERG, L.G., inzh.

Monograph for calculating the efficiency and energy capacity of hydraulic coal mining. Trudy VNIIGidrougleda no.3:90-[illegible] (MIRA 18:

1. Vsesoyuznyy nauchno-issledovatel'skiy i proyektno-konstruktorskiy institut gidravlicheskogo [illegible]

SOV/112-58-3-4520

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1958, Nr 3, p 161 (USSR)

AUTHOR: Teodorovich, B. A., and Tsyapko, N. F.

TITLE: Problems of Process Automation in Underground Hydraulic Coal Mining (Voprosy avtomatizatsii proizvodstvennykh protsessov pri podzemnoy gidravlicheskoy dobyche uglya)

PERIODICAL: Sb. tr. nauchn. konferentsii, Nr 1, Kemerovo, 1957, pp 245-275

ABSTRACT: A principal scheme of underground hydraulic coal mining, conditions for automation, and automation objectives are considered. Cutting processes involved in the hydromining system, associated with automation of the hydro-monitor control, are considered in detail. Experimental models of hydraulically-controlled hydromonitors designed by KuzNIUI and by the Kuznetsk Branch Office of Gidrouglemash will be provided with program-controlled automatic devices. The type GDTs-2 hydraulically remote-controlled hydromonitor will operate in conjunction with an automatic-control unit that will

Card 1/3

Problems of Process Automation in Underground Hydraulic Coal Mining

actuate the control levers. The hydromonitor will be controlled according to a program recorded on a ferromagnetic film. The control program will be prepared by a highly qualified worker; his actions will be recorded during one cycle of stoping or developmental work. Then, the automatic-control unit will be switched over to production, and the hydromonitor will repeat the program in a new cycle. The control unit consists of a master oscillator, master-oscillator pulse amplifiers, a storing device, a direct-coupling and feedback unit, a control-pulse amplifier, and servoactuators of trunk-swing mechanisms. In the direct-control system, the worker turns the levers controlling the hydromonitor-trunk lifting and slewing movements; the amplifiers receive signals whose magnitude depends on the lever positions; the amplifier output is fed to the recorder of the storing device. Immediately after the recording, the pulses are read out by the reproduction heads and, after amplification, are fed to the servoactuator; the latter actuates the mechanism of the hydromonitor

Problems of Process Automation in Underground Hydraulic Coal Mining

trunk. Thanks to the feedback, only one definite position of the trunk corresponds to a given signal value. A practical scheme currently being studied is presented. Further improvement of the automatic hydromonitor control is seen in using the information obtained from pickups that would respond to the hardness of coal and adjacent rock and to the layer geometric parameters; also, using an acoustic or radio location of the heading face is considered. This information will be fed to a computer that will issue commands to the end devices of mining machinery, etc. A block diagram and a simplified circuit of program control for a hydromonitor are presented. Illustrations: 13. Bibliography: 2 items.

S.A.P.

TSYAPKO, N.F., inzh.

Automating the high pressure hydraulic breaking-down of coal.
Trudy VNIIGidrouglia no.1:3-13 '62. (MIRA 16:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy i proyektno-konstruktorskiy institut dobychi uglya gidravlicheskim sposobom.

AUTHOR: Tsyapko, N.F., Engineer 118-58-6-6/21

TITLE: Hydraulic Monitors of the VNIIGidrougol' (Gidromonitory VNIIGidrouglya)

PERIODICAL: Mekhanizatsiya trudoyëmkikh i tyazhëlykh rabot, 1958, Nr 6, pp 15-17 (USSR)

ABSTRACT: The author describes in detail hydraulic monitors used in Soviet coal mines. At the beginning of Soviet hydraulic coal mining, monitors of the type GM-1, RGM-1 and the improved model RGM-1M were applied. The RGM-1M washes out from 25 to 30 tons of coal per hour. Recently the VNIIGidrougol' Institute designed and constructed the GDTs2 hydraulic remote control monitor. For mining coal veins of a thickness less than 1 m, the workshops of the VNIIGidrougol' have constructed special small hydraulic monitors of the type GMRTs (manual control) and GMDTs (hydraulic control). The author gives a detailed description of the monitors and asserts that Soviet industry will develop, in 2-3 years, automatic hydraulic monitors and others with a predirected electronic control (Programnoye upravleniye). There are 4 diagrars.

Card 1/1 1. Coal mining--USSR 2. Hydraulics--Applications 3. Monitors --Characteristics

TSYAPKO, Nikolay Fedorovich; OKHRIMENKO, V.A., otv. red.; MINSKER, L.I., tekhn. red.

[Instructions for operators of hydraulic monitors] Pamiatka gidromonitorshchika. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po gornomu delu, 1960. 109 p. (MIRA 15:4)
(Hydraulic mining)

TSYAPKO, Nikolay Fedorovich, insh.; CHAPKA, Anatoliy Marianovich, kand. tekhn.nauk; NUROK, G.A., prof., doktor tekhn.nauk, retsenzent; GERONT'YEV, V.I., prof., doktor tekhn.nauk, retsenzent; SEREBRYANYY, A.G., otv.red.; OKHRIMENKO, V.A., red.izd-va; KOROVENKOVA, Z.A., tekhn.red.

[Hydraulic coal breaking in underground coal mining] Gidrodobycha uglia na podzemnykh rabotakh. Moskva, Gos.nauchno-tekhn. izd-vo lit-ry po gornomu delu, 1960. 312 p. (MIRA 13:5)
(Hydraulic mining)

KRIVCHENKO, A.A., kand. tekhn. nauk; TSYAPKO, N.F.

Improving hydraulic coal breaking. Ugol' 39 no.9:23-26 S '64. (MIRA 17:10)

1. Donetskiy nauchno-issledovatel'skiy ugol'nyy institut (for Krivchenko). 2. Vsesoyuznyy nauchno-issledovatel'skiy i proyektno-konstruktorskiy institut dobychi uglya gidravlicheskim sposobom (for Tsyapko).

HODNEU, TS.N.; TSYARENTS'YEVA, M.V.

Fermentation transformation of protochlorophyll into chlorophyll in ethylated leaves of corn in the dark. [Vestsi AN BSSR no.6: 37-41 N-D '52. (MLRA 7:8)
(Chlorophyll) (Corn)

PAGARSKI, N.I.; TSYARESHCHANKA, V., redaktor; KOLECHYTS, G., tekhnicheskiy redaktor

[The party organization in the struggle to increase flax production; the practices of a district party organization] Partarganizatsyia u barats'be za uzdum il'navodstva; z vopytu raboty raennoi partyinai arganizatsyi. Minsk, Dziarzh. vyd-va BSSR, 1955. 67 p. (MLRA 10:1)

1. Sakratar Talachynskaga PK KPB (for Pagarski)
(Flax) (Communist Party of the Soviet Union--Party work)

BUKHALO, S.M., doktor ekon. nauk, prof.; VOLOBOY, P.V., kand. ekon. nauk; KUCUKALO, I.A.[Kuiukalo, I.A.], kand. ekon. nauk; PALAMARCHUK, M.M., doktor ekon. nauk, prof.; SLYUSAR, V.D., kand. ekon. nauk; GLADYSHEV, I.S.[Hladyshev, I.S.], st. inzh.-ekonomist; TSYASHCHENKO, P.S., kand. ekon. nauk; PETRUNEVICH, E.G. [Petrunevych, IE.H.], st. inzh.-ekonomist; GRADOV, G.L.[Hradov, H.L.], kand. ekon. nauk; KHAZANET, S.M., red.

[The economic regions of the Ukrainian S.S.R.; a manual] Ekonomichni raiony URSR; dovidnyk. Kyiv, Naukova dumka, 1965. 190 p. (MIRA 18:5)

1. Sovet po izucheniyu produktivnykh sil Ukrainskoy P.SR Gosudarstvennogo planovogo komiteta Ukr. RSR(for all except Khazanet).

TSYASHCHENKO, Yu.P.; BAN'KOVA, L.Ye.

Infrared absorption in $CHCl_3$-$CHBr_3$ mixed crystals. Opt. i spektr. 18 no.1:167-170 Ja '65. (MIRA 18:4)

LISITSA, M.P.; STRIZHEVSKIY, V.L.; SUGAKOVA, N.A.; TSYASHCHENKO, Yu.P.

Verification of the Kramers-Kronig relations in the vibrational part of the spectrum. Dokl. AN SSSR 163 no.6:1361-1362 Ag '65.
(MIRA 18:8)

1. Kiyevskiy gosudarstvennyy universitet. Submitted February 5, 1965.

S/185/62/007/009/005/006
D234/D308

AUTHOR: Tsyashchenko, Yu.P.

TITLE: Infrared dispersion of liquid bromoform in the region 650 - 800 cm-1

PERIODICAL: Ukrayins'kyy fizychnyy zhurnal, v. 7, no. 9, 1962, 1021-1023

TEXT: The measurements were carried out with the aid of the reflection method described previously (PTE, no. 4, 108, 1961). $CHBr_3$ was covered with a NaCl plate. No accurate data could be obtained near the minimum of the dispersion curve. It is estimated that the minimum refractive index cannot be less than 1.15 - 1.2. The average error in measuring n is 15% in the absorption band and 5% in the region 700 - 850 cm^{-1}. Graphs of the reflection spectrum, of n and the absorption coefficient $\varkappa$ are given. The maximum of n is displaced towards larger frequencies with respect to the maximum of $\varkappa$ by an amount considerably exceeding the experimental error. It is stated to be probable that ordinary dispersion relations are

Card 1/2

Infrared dispersion ...

here disturbed since the calculated value of the integral absorption in the ν_5 band exceeds the measured value. The author expresses his gratitude to M.P. Lysytsya for discussion. There are 2 figures.

ASSOCIATION: Kyyivs'kyy derzhuniversytet im. T.H. Shevchenka (Kiev State University im. T.H. Shevchenko)

SUBMITTED: April 9, 1962

Card 2/2

TSYASHCHENKO, Yu.P.

Infrared dispersion of liquid bromoform in the 650-800 cm^{-1} region. (MIRA 15:12)
Ukr. fiz. zhur. 7 no.9:1021-1023 S '62.

1. Kiyevskiy gosudarstvennyy yniversitet im. Shevchenko.
(Spectrum, Infrared) (Bromoform)

LISITSA, M.P.; TSYASHCHENKO, Yu.P.

Effect of temperature on the absorption in certain vibrational bands of gaseous chloroform and bromoform. Opt. i spektr. 9 no. 6:742-746 D '60. (MIRA 14:1)

(Chloroform--Spectra) (Bromoform--Spectra)

LISITSA, M.P.; TSYASHCHENKO, Yu.P.

Temperature dependence of the vibrational absorption bands of crystalline chloroform and bromoform. Opt. i spektr. 10 no.2:157-164 F '61. (MIRA 14:2)

(Chloroform—Spectra) (Bromoform—Spectra)

LISITSA, M.P.; TSYASHCHENKO, Yu.P.

Effect of temperature on the intensities of vibrational absorbtion bands of liquid bromoform. Opt. i spektr. 9 no.2:188-194 Ag '60. (MIRA 13:8)

(Bromoform--Spectra)

VOLYNSKIY, Yu.D.; BAGRAMYAN, I.G.; TSYB, A.F.; BYKOV, G.A.

Characteristics of the systolic phase of the right ventricle in patients with acquired heart defects. Izv. AN Arm. SSR. Biol. nauki 16 no.7:53-62 Jl '63. (MIRA 16:11)

1. Institut khirurgii imeni A.V. Vishnevskogo AMN SSSR, Moskva i Institut kardiologii i serdechnoy khirurgii AMN SSSR.

TSUKERMAN, G.I.; PETROSYAN, Yu.S.; IEVANT, A.D.; DANIYELYAN, L.A.; KOSTYUCHENOK, B.M.; TSYB, A.F.; KISIS, S.Ya.; GOLIKOV, G.T.; POKROVSKIY, A.V ; BURAKOVSKIY, V.I.; KONSTANTINOV, B.A.; LYUDE, M.N.; GOLOVZKO, R.R.

Proceedings of the meetings of the Surgical Society of Moscow and Moscow region. Grud. khir. 6 no.6:114-117 N-D '64. (MIRA 18:7)

1. Institut serdechno-sosudistoy khirurgii AMN SSSR (for all except Kostyuchenok, TSyb). 2. Institut khirurgii imeni A.V. Vishnevskogo AMN SSSR (for Kostyuchenok, TSyb).

TSYB, A.F. (Moskva, A-315, I Baltiyskiy pereulok, d.3/25)

Diastolic gradient and pressure curves of the right auricle in patients with tricuspid stenosis. Grud. khir. 6 no.5:12-19 S-O '64. (MIRA 18:4)

1. Laboratoriya fiziologii (zav. - prof. L.L.Shik) Instituta khirurgii imeni Vishnevskogo (dir. - deystvitel'nyy chlen AMN SSSR prof. A.A.Vishnevskiy) AMN SSSR, Moskva.

S/051/60/009/004/004/034
E201/E191

AUTHORS: Lisitsa, M.P., and Tsyashchenko, Yu.P.

TITLE: The Temperature Dependence of the Infrared Absorption Band Intensities of Liquid Chloroform

PERIODICAL: Optika i spektroskopiya, 1960, Vol 9, No 4, pp 438-445

TEXT: The authors made a quantitative study of the temperature dependence of total infrared absorption in the fundamental vibration bands ν_1 and ν_4, the most intense harmonics $2\nu_1$ and $2\nu_4$, as well as the combination frequencies $\nu_1 + \nu_4$, $\nu_2 + \nu_6$ and $\nu_3 + \nu_6$ of liquid chloroform. These measurements were carried out at five temperatures: -58, -30, +20, +40, and +60 °C. A cell used in this study was described earlier (Ref 1); between 20 and 60 °C it was heated in an electric furnace and below 20 °C it was cooled in a cryostat shown in Fig 1. Some results are given in Fig 2, which shows the fundamental vibration bands ν_1 (Fig 2a), ν_4 (Fig 2б), combination frequencies $\nu_2 + \nu_6$ (Fig 2в), $\nu_1 + \nu_4$ (Fig 2г), and a harmonic $2\nu_1$ (Fig 2д). The intensities of the bands ν_1 (Fig 3, curve 1),

Card 1/2

S/051/60/009/004/004/034
E201/E191

The Temperature Dependence of the Infrared Absorption Band Intensities of Liquid Chloroform

ν_4 (Fig 3, curve 2), $\nu_1 + \nu_4$ (Fig 4, curve 1), $\nu_2 + \nu_6$ (Fig 4, curve 2), $\nu_3 + \nu_6$ (Fig 4, curve 3) all fell linearly with increase of temperature. The intensities of the harmonics $2\nu_1$ and $2\nu_4$ were independent of temperature. Comparison of the temperature variations of the vibrational absorption bands of $CHCl_3$, $CHBr_3$, CCl_4 and CBr_4, established a correlation between the volume expansion coefficient of each liquid and the mean temperature coefficient of the intensity of the bands.

There are 4 figures and 20 references: 10 Soviet and 10 English.

SUBMITTED: January 4, 1960

Card 2/2

S/051/60/008/04/006/032
E201/E691

AUTHORS: Gaponova, N. Ye., Lisitsa, M.P. and Tsyashchenko, Yu. P.

TITLE: Frequencies and Intensities in the Infrared Spectrum of Bromoform

PERIODICAL: Optika i spektroskopiya, 1960, Vol 8, Nr 4, pp 465-470 (USSR)

ABSTRACT: The absorption spectrum of bromoform ($CHBr_3$) was investigated in the region 460-11700 cm^{-1} using a technique described earlier (Refs 10, 11). The absorption spectrum obtained is shown in Fig 1. The interpretation, symmetry, absorption coefficients at the band maxima (K_{max}), half-widths (Γ) and integral absorption (S) are listed in a table on pp 466-7. The values of S and Γ are given only for the fundamental vibrations and for isolated bands which can be easily separated into symmetrical components. The table includes also the published (Refs 4, 8) frequencies of various band maxima. The intensities of the fundamental vibrations and harmonics were explained in terms of the degree of polarity of the chemical bonds. Comparison of the absorption spectra of $CHBr_3$ and $CHCl_3$ showed that the integral absorption of the

Card 1/2

S/051/60/008/04/006/032
E201/E691

Frequencies and Intensities in the Infrared Spectrum of Bromoform

fundamental vibration bands depends on the degree of polarity of the bonds which determine the forms of these vibrations. There are 2 figures, 1 table and 16 references, 7 of which are Soviet, 3 English, 4 French, 1 Italian and 1 translation from English into Russian.

SUBMITTED: June 29, 1959

Card 2/2

TSYASHCHENKO, Yu.P.

Contours of the oscillatory absorption bands of liquid chloroform and bromoform. Opt. i spektr. 11 no.2:192-195 Ag '61.
(MIRA 14:8)

(Chloroform—Spectra)
(Bromoform—Spectra)

LISITSA, M.P.; TSYASHCHENKO, Yu.P.

Temperature dependence of infrared absorption band intensities of liquid chloroform. Opt. i spektr. 9 no.4:438-445 O '60.
(MIRA 13:11)

(Chloroform--Spectra)

24(7), 24(4)

SOV/51-6-5-8/34

AUTHORS: Lisitsa, M.P. and Tsyashchenko, Yu.F.

TITLE: Quantitative Studies of Infrared Absorption and Dispersion of Chloroform (Kolichestvennyye issledovaniya infrakrasnogo pogloshcheniya i dispersii khloroforma)

PERIODICAL: Optika i Spektroskopiya, 1959, Vol 6, Nr 5, pp 605-615 (USSR)

ABSTRACT: Although the amount of published work on $CHCl_3$ is large (Refs 1-18), a complete and systematic account of data on the infrared spectrum and its interpretation is still lacking. Dispersion of chloroform is dealt with in an even smaller amount of published work (Refs 19, 20). The present authors determined the absorption coefficients of liquid $CHCl_3$ in the 470-3150 cm^{-1} regions and the dispersion curve in the region of the most intense band (corresponding to the fundamental vibration ν_3). The absorption coefficients were measured using an infrared spectrometer IKS-3. The absorption coefficients were calculated from $I_1/I_2 = \exp\left[-K(d_1 - d_2)\right]$, where I_1 and I_2 are the intensities of a light beam which has passed through thicknesses d_1 and d_2 of $CHCl_3$. The values of K and of the integral absorption $\int K_\nu d\nu$ were determined to within 5-10%, except in the ν_3-band region where the error was 15-20%.

Card 1/3

Quantitative Studies of Infrared Absorption and Dispersion of Chloroform

To measure dispersion of $CHCl_3$ in the ν_5-band region a special reflection method was developed (Ref 26), in which the effect of vapour was eliminated (vapours may affect the measured reflectivity of a free surface of volatile liquids). In the regions neighbouring with the ν_5-band the refractive index was determined by an improved interference method (Ref 26). The error measurement of n in the ν_5-band region did not exceed 12-15% and outside the band it was 5-8%. The absorption curves of liquid $CHCl_3$ (the absorption coefficient K plotted against wavelength) are shown in Figs 1-7. The wave-numbers of various vibrations, their interpretation and symmetry, the absorption coefficients at the band maxima, the integral absorption $(\int K_\nu d\nu)$ and the band half-width $\bar{G}$ in the range 350-16500 cm^{-1} are collected in Table 2. This table includes also frequencies measured by other workers (Refs 2, 3, 5, 6, 10-15). It is found that the partial identification reported by various workers (Refs 2, 5, 11, 13, 15, 16) agrees entirely with the identification deduced by the present authors. This identification was based on the C_{3v} symmetry group model of the $CHCl_3$ molecule. The spectrum shown in Figs 1-7 and the data of Table 2 indicate that the most intense band is due to degenerate vibrations of the C--Cl bonds with a frequency ν_5. The integral absorption of the

Card 2/3

Quantitative Studies of Infrared Absorption and Dispersion of Chloroform

fully symmetric vibrations ν_1, together with its satellite, is much smaller than the integral absorption of the vibrations ν_3 and ν_4. This is due to the fact that the C--H bond is essentially homopolar (covalent) while the C--Cl bond is more ionic. The dispersion curve of $CHCl_3$ in the ν_3-band region is shown in Fig 8 together with the absorption index curve (the absorption index is given by $\varkappa = K/4\pi\nu$). The dispersion curve (denoted by n in Fig 8) is seen to be strongly asymmetric. There are 8 figures, 2 tables and 30 references, 7 of which are Soviet, 7 French, 6 English, 5 German, 3 Italian, 1 Japanese and 1 translation from English into Russian.

SUBMITTED: May 8, 1958

Card 3/3

SOV/120-59-4-25/50

AUTHORS: Lisitsa, M. P., Tsyashchenko, Yu. P.

TITLE: Dispersion Measurements in Regions of Strong Infrared Absorption

PERIODICAL: Pribory i tekhnika eksperimenta, 1959, Nr 4, pp 108-112 (USSR)

ABSTRACT: The method described here is based on reflection and is intended for use with liquids. The cells are hermetically sealed in order to eliminate interference from the vapour (the examples given relate to $CHCl_3$ and CCl_4). Fig 1 shows reflection curves for CCl_4 near 12 μ; the top curve is for a properly sealed cell, while the bottom one relates to a cell with a vapour leak. The window used to seal off the liquid is an optically worked plane-parallel plate (e.g. of rock salt); Eq (1) gives R, the measured reflecting power, in terms of I_r (the reflected intensity) and I_o (the incident intensity), or in terms of R_{12} (the reflection coefficient at the outer surface of the plate) and of R_{23} (the reflection coefficient at the inner surface). Eq (2) gives R_{12} as a function of n, which is known accurately

Card 1/2

Dispersion Measurements in Regions of Strong Infrared Absorption

and so Eq (3) gives R_{23} . Then Eq (4) gives R_{23} in terms of the parameters of the liquid and plate, and Eq (5) gives n for the liquid. Fig 2 shows the reflection unit; Fig 3 shows the optical system used (the angle of incidence does not exceed 10^0). Here P_3 is a mirror and C is the cell. Fig 4 shows results for CCl_4 , and Fig 5 does the same for $CHCl_3$. The values of x are taken from Ref 5 in the case of CCl_4 , and have been measured by the method given in Ref 5 (but not described here) in the case of $CHCl_3$. The paper concludes with a brief theoretical note on the interference method of measuring n for the wings of the absorption curve; a thin film of liquid is used to form interference bands by multiple reflection. The method is suitable for regions in which the absorption is too strong for a prism to be used, but is too weak for the method above to be suitable. There are 5 figures and 12 references, 1 of which is German, 4 French, 6 English and 1 Soviet.

ASSOCIATION: Kiyevskiy gosudarstvennyy universitet (Kiyev State Univ.)

SUBMITTED: May 12, 1958.

TSYASHENKO, P. S.

20878. Tsyashenko, P. S. i Stetsenko, N. T. Tridtsat' let sobetskogo svekloseyaniya Sbornik nauk rabot (Vsesoyuz. nauch. -issled. in-t sakhar. svekly) Kiyev-khar'kov, 1948, s. 3-9.

SO: LETOPIS ZHURNAL STATEY - Vol. 28, Moskva, 1949.

KOSTYUCHENOK, B.M.; TSYB, A.F.

Methodology for measuring the areas of the mitral, aortic and tricuspid ostia before and during surgery for combined stenosis. Eksper. khir. i anest. no.1:16-20 '65. (MIRA 18:11)

1. Institut khirurgii imeni A.V. Vishnevskogo (direktor - deystvitel'nyy chlen AMN SSSR prof. A.A. Vishnevskiy) AMN SSSR, Moskva.

TSYB, P. P.

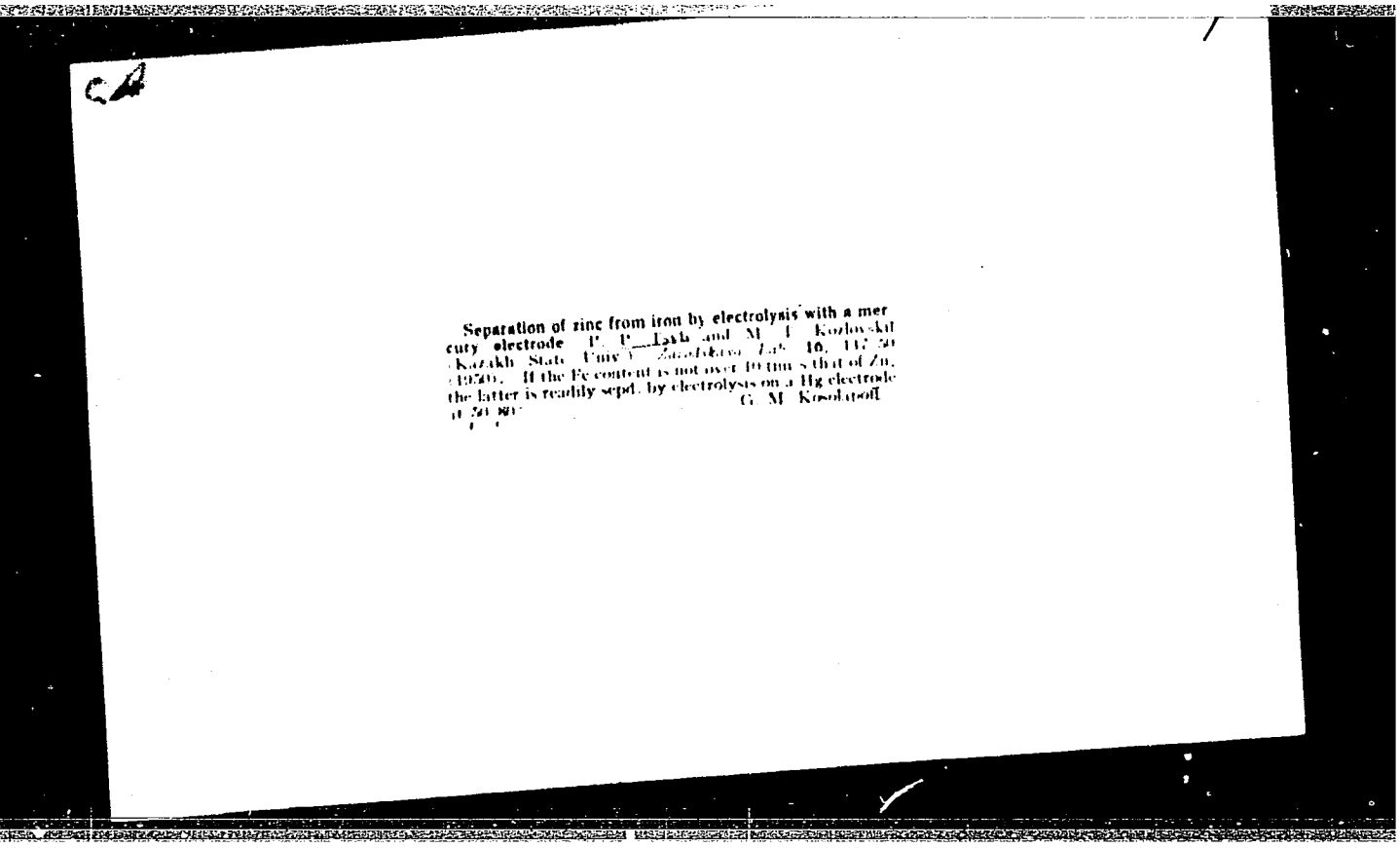
USSR/Metals - Analysis, Electrolysis Dec 50

"Separation of Zinc From Cobalt by Electrolysis With a Mercury Electrode," P. P. Tsyb, Kazakh State U imeni S. M. Kirov

"Zavod Lab" No 12, pp 1419-1423

Shows that electrolysis with Hg electrode is feasible method. Zn may be sepd from Co by decompn of amalgams in acid and alkali solns using external emf or without it. Decompn of amalgams proceeds more satisfactorily in acid soln than in alkali.

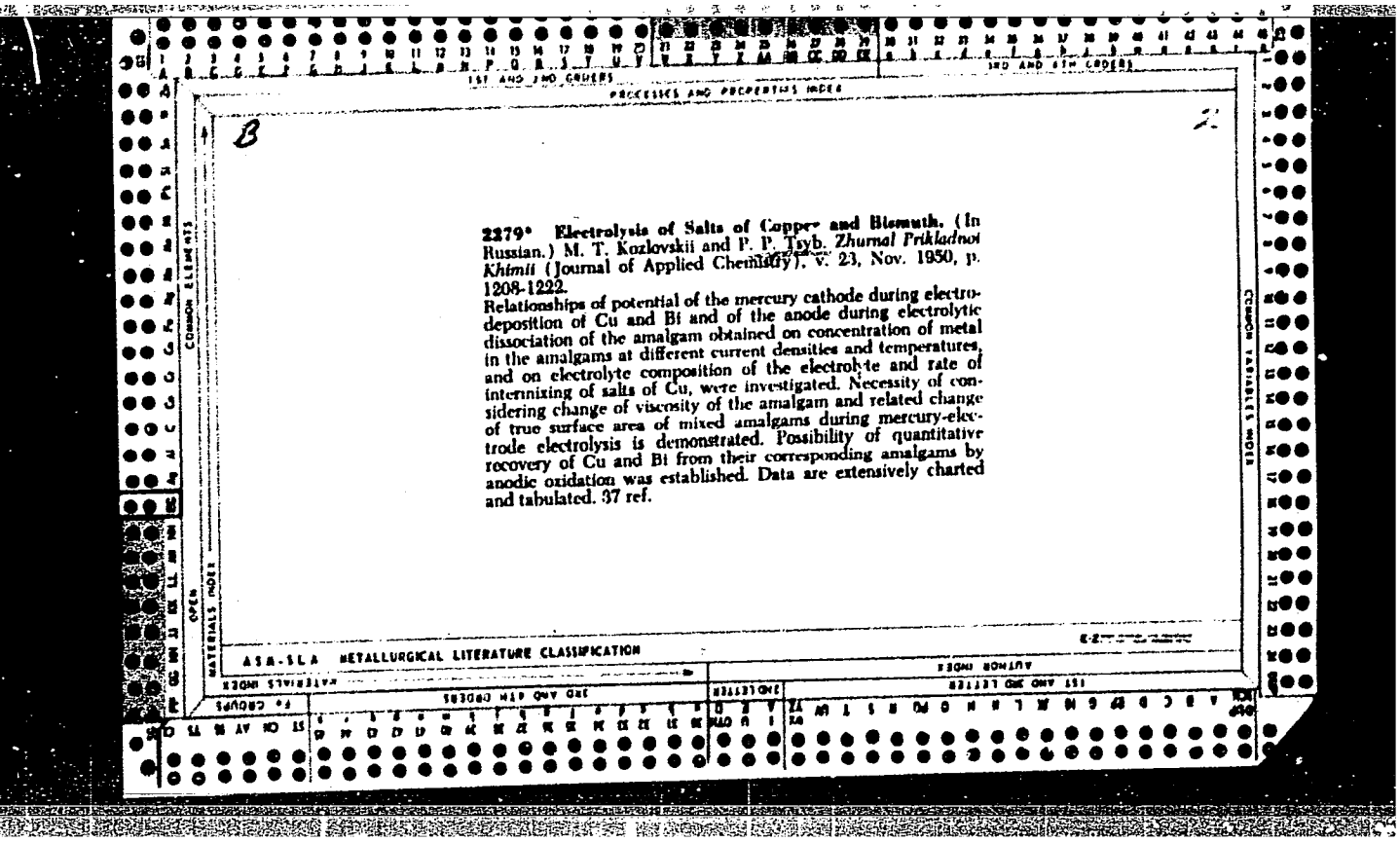
182T83



Separation of zinc from iron by electrolysis with a mercury electrode. P. P. Lash and M. I. Kozlovskii (Kazakh. State Univ., Alma-Ata). Zavodskaya Lab. 16, 1137-40 (1950). If the Fe content is not over 10 times that of Zn, the latter is readily sepd. by electrolysis on a Hg electrode at 2V. G. M. Kosolapoff

Separation of zinc from cobalt by electrolysis with mercury electrodes. P. P. Tsyb. *Zavodskaya Lab.* 16, 1419-23(1950). Zn can be sepd. from Co by electrolysis with a Hg electrode, followed by decompn. of the amalgam in acid or alk. solns., either with or without externally applied e.m.f. The decompn. of the amalgam is best done in acid solns. such as N H_2SO_4. Zn is removed from the amalgam preferentially and only after its removal does the potential rise to the value necessary for sepn. of Co; only insignificant amts. of Zn remain at this point in the amalgam.

G. M. Kosolapoff



2279* **Electrolysis of Salts of Copper and Bismuth.** (In Russian.) M. T. Kozlovskii and P. P. Tsyb. *Zhurnal Prikladnoi Khimii* (Journal of Applied Chemistry), v. 23, Nov. 1950, p. 1208-1222.

Relationships of potential of the mercury cathode during electrodeposition of Cu and Bi and of the anode during electrolytic dissociation of the amalgam obtained on concentration of metal in the amalgams at different current densities and temperatures, and on electrolyte composition of the electrolyte and rate of intermixing of salts of Cu, were investigated. Necessity of considering change of viscosity of the amalgam and related change of true surface area of mixed amalgams during mercury-electrode electrolysis is demonstrated. Possibility of quantitative recovery of Cu and Bi from their corresponding amalgams by anodic oxidation was established. Data are extensively charted and tabulated. 37 ref.

USSR/Chemistry - Electrolytic Refining of Metals Aug 51

"Electrode Potentials in the Electrolysis of Salts of Different Metals With a Mercury Electrode," P. P. Tsyb, M. T. Kozlovskiy, Kazakh State U imeni S. M. Kirov

"Zhur Prik Khim" Vol XXIV, No 8, pp 840-850

By examn of electrolytic depostion at anode and decompn at cathode of Sn and Cd amalgams, established dependence of cathode and anode potentials in respective cases at different temps and cd on (1) concn of metal ions in amalgams, (2) concn of metal ions in electrolyte, (3) acidity of electrolyte (for Sn). 190T28

USSR/Chemistry - Electrolytic Refining of Metals (Contd) Aug 51

Amalgams can be electrolytically decompd. Changed viscosity of amalgam due to changed metal content and changed surface of amalgam due to formation of crystals will affect cd and potentials.

190T28

TSYB, P. P.

TSYB, P.P.

USSR/Chemistry - Electrolytic Refining of Metals Aug 51

"Electrolysis of Zinc Salts," M. T. Kozlovskiy, P. P. Tsyb, Ye. I. Ruzina, Kazakh State U imeni S. M. Kirov

"Zhur Prik Khim" Vol XXIV, No 8, pp 882-886

In electrolytic deposition of Zn on Hg cathode, and in electrolytic decompn of resultant amalgam at anode, established dependence of potentials of cathode and anode in respective cases on (1) concn of Zn in amalgam, (2) concn of Zn ions in

190T33

USSR/Chemistry - Electrolytic Refining of Metals (Contd) Aug 51

electrolyte, (3) rate of agitation. Almost total electrolytic transfer of Zn from amalgam to electrolyte is possible.

190T33

TSYB, P. P.

Chemical Abst.
Vol. 48 No. 4
Feb. 25, 1954
Analytical Chemistry

Amalgam methods of separation and determination of nonferrous metals. M. T. Kozlovskii, P. P. Tsyb, and E. F. Sperenskaya. *Trudy Komissii Anal. Khim., Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 4(7), 255–62(1952).—The metals were sepd. by electrolysis of their solns. with a Hg cathode and subsequent anodic oxidation of the amalgam obtained, with both processes at controlled electrode potentials. Zn was pptd. from its soln. with Na amalgam. Curves showing the dependence of cathode potential on c.d. were plotted for Cu, Bi, Sn, Cd, Zn, and Fe with the Hg cathode. For all the curves the amalgam contained 1 g.-atom of metal per l. of Hg, the electrolyte contained 0.1 g.-ion of metal and 1 g.-equiv. H_2SO_4, except for Bi when the electrolyte contained 0.0193 g.-ion Bi and 2 g.-equiv. H_2SO_4 per l. Temp. was 18–23°; r.p.m. of stirrer was 468. Curves show that Cu and Bi could be sepd. from the other metals, Sn and Cd could be sepd. from Zn and Fe, but Zn and Fe could not be sepd. Similar curves, under the same conditions, were plotted for the anodic decompn. of the amalgams. This decompn. did not occur reversibly. Decompn. of Fe began at a more pos. potential than the potential for depositing of Fe on Hg. This was explained as a result of anodic passivation of Fe. Ni and Co amalgams showed passivation at their anode decompn. Zn and Fe were sepd. by conversion to amalgams and anodic oxidation of their amalgams at a detd. potential. Fe remained in Hg. Thus an Fe-free Zn soln. was obtained from 0.04 g. Zn and 0.4 g. Fe. When the method was carried out twice on a sample, 0.02 g. Zn was sepd. quantitatively from 0.8 g. Fe. C.d. at the cathode was 0.031 amp./sq. cm., temp. 70–80°. Fe and Zn were not sepd. by shaking their soln. with Na amalgam. Al did not ppt. Zn completely from the Zn soln. By internal electrolysis with Na amalgam 0.125 g. Zn was sepd. from soln. in 1½ hrs. In alk. solns. the Zn deposit was porous and black, but addn. of plumbite (approx. 1% of amt. of Zn) gave a bright deposit. In 1 hr. (with plumbite) 0.1488 g. Zn was completely pptd. by Na amalgam upon a silvered Pt cathode. The current was 0.35 amp. at the start and 0.03 amp. at the finish. Zn could also be deposited from an alk. tartrate soln.

Eurilla Mayerle

(3) Chem

NF 7-13-54

TSYB, P. P.

KOZLOVSKIY, M.T.; TSYB, P.P.; BABKIN, G.N.; VITORSKAYA, L.L.; SKLABINSKAYA, I.V.

Electrolysis of salts of metals from the iron group, with the use of a mercury cathode. Zhur.prikl.khim. 27 no.7:757-768 Jl '54. (MLRA 7:8)

1. Kazakhskiy Gos. universitet im. S.M.Kirova, g. Alma-Ata.
(Electrolysis) (Amalgams) (Electrodes, Mercury) (Metals)

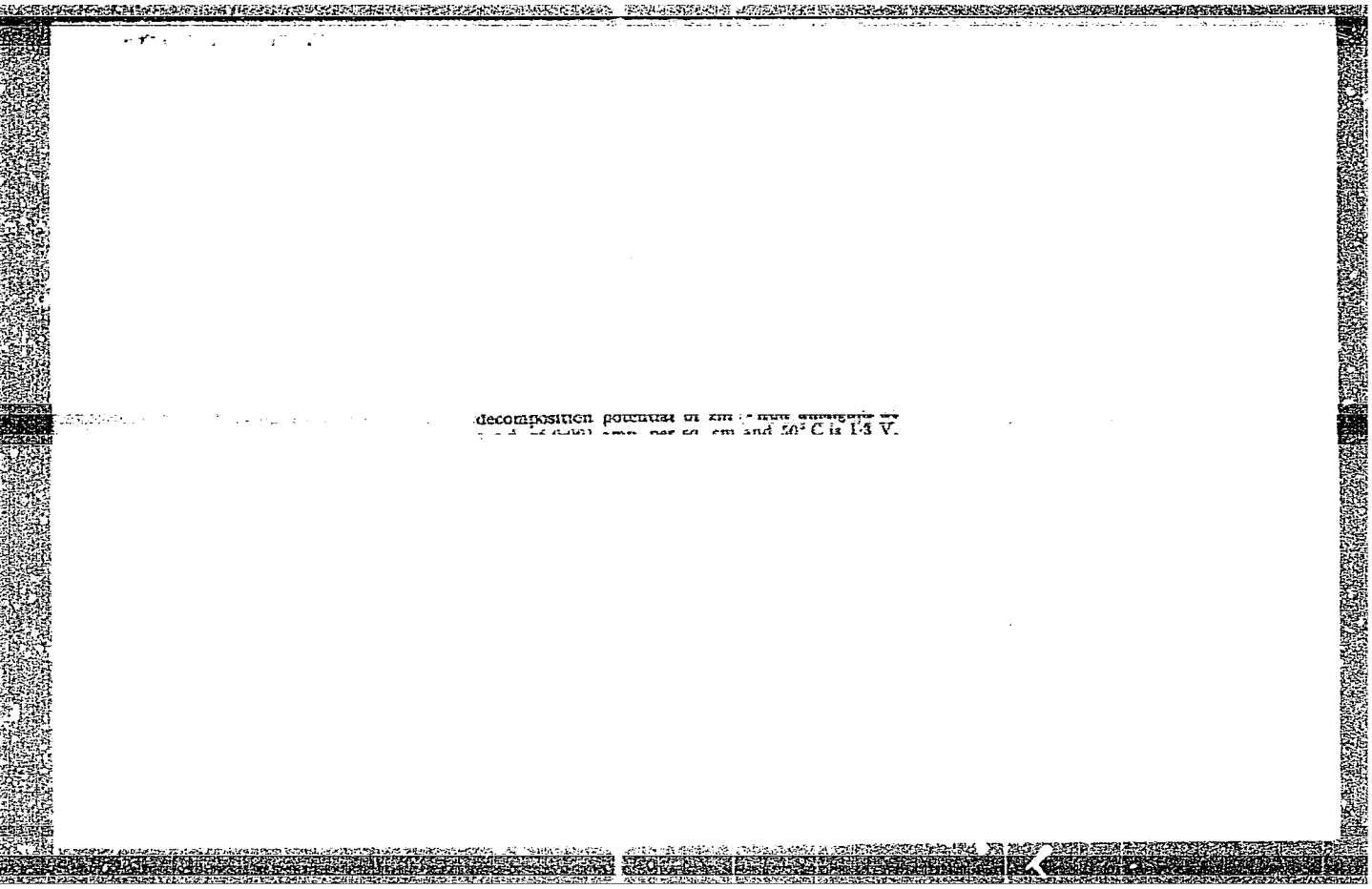
Tsyb, P. P.

Electrolysis of chromium salts with a mercury electrode. P. P. Tsyb. *Uchenye Zapiski Kazakh. Univ.* 16, 65–71 (1954); *Referat. Zhur., Khim.* 1955, No. 3303.—The discharge potentials of H ions from N H_2SO_4 were measured on Hg and Cr amalgams. In addn., the relation between the anodic and cathodic potentials of the amalgam electrode and the concn. of Cr in the amalgam and the acidity of the electrolyte was studied. The Cr in the amalgam was between 0.0061 and 5.100 g. at. Cr per 1 l. Hg. The detns. were carried out at 18–23, 48–53, and 78–83°, and c.d. 4.7–119 ma./sq. cm. A Pt foil sepd. from the cathodic area by a cellophane diaphragm was used as an anode. The Cr amalgams were obtained by electrolysis of $Cr_2(SO_4)_3$ soln. The H discharge potential on Cr amalgam was more pos. than on pure Hg, and as the Cr in the amalgam increased, the potential shifted to more pos. values. In the electrolysis of a $0.05N$ $Cr_2(SO_4)_3$ + N H_2SO_4 at a given c.d. value the cathodic potential shifted to more pos. values with an increase of Cr in the amalgam. Cathodic polarization rose with increase in c.d. and also with an increase in the acidity of the soln. within the limits of 0.01–4N H_2SO_4 and decreased with rising temp. In anodic polarization, Cr amalgams were partly oxidized to Cr^{+++} and passed into soln., and partly remained as black powder on the surface of the amalgam. The deposition potential of Cr from alk. solns. was more neg. than from acid solns. In measuring the cathodic and anodic potentials the results were not reproducible. In the electrolysis of N H_2SO_4 soln. contg. 0.6344 g. Cr at 20° and approx. 100 ma./sq.cm. the yield of Cr was 26.8%.

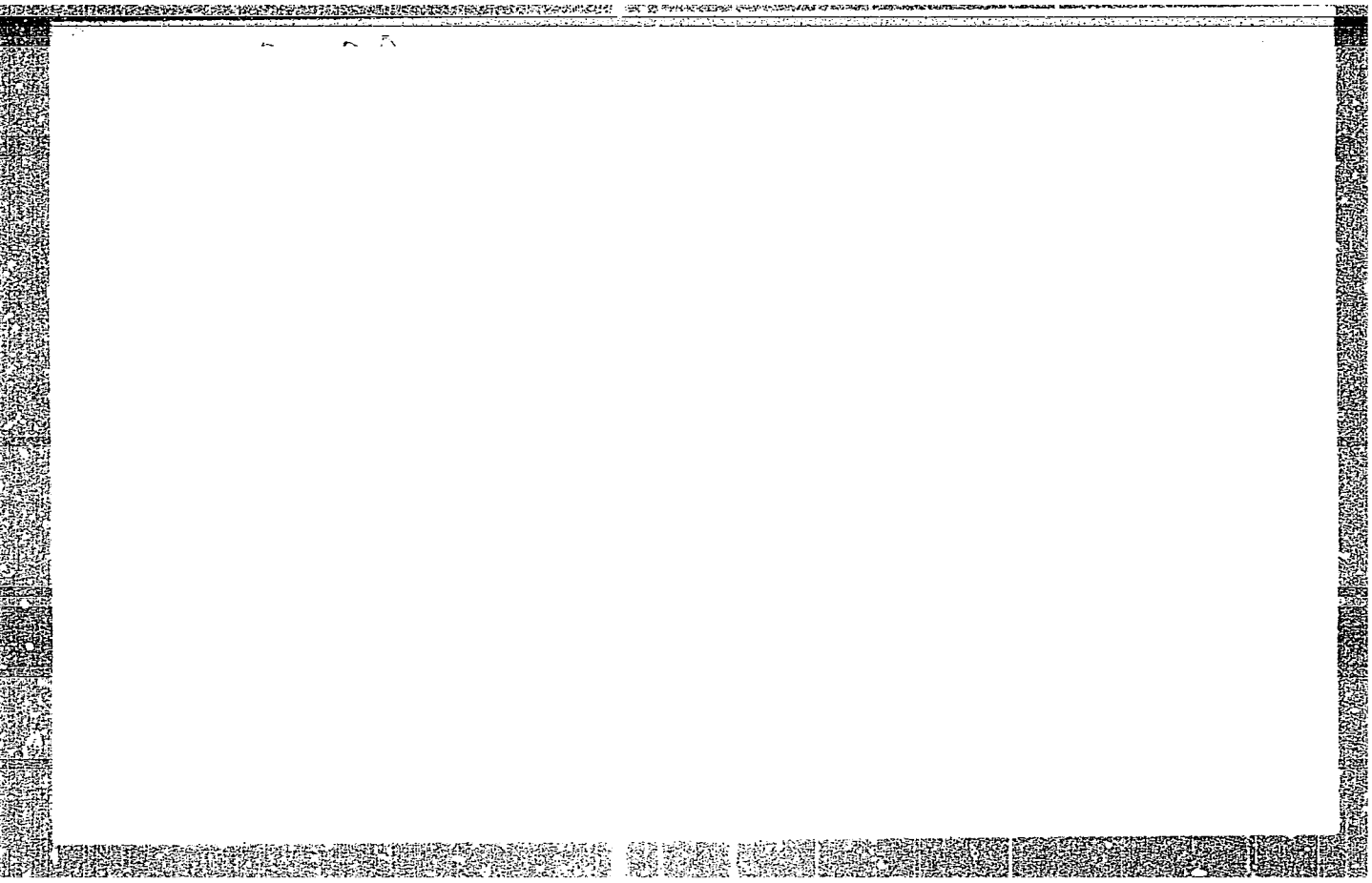
M. Hosch

1

5000



decomposition potential of zinc [illegible] and 50° C is 1.3 V.



APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001757310004-3"

AUTHORS: Getskin, L.S., Batyuk, A.G. and Tsyb, P.P. 136-7-5/22

TITLE: Granulation of pulverulent materials with strong sulphuric acid. (Granulyatsiya pylevidnykh materialov s krepkoy sernoy kislotoy).

PERIODICAL: "Tsvetnye Metally" 1957, No.7, pp.23-25 (USSR).

ABSTRACT: The methods of sulphating polymetallic pulverulent material proposed by most investigators depend on the use of dilute sulphuric acid, which leads to practical difficulties. In the present article, a method developed at the VNIItsvetmet is described in which the pulverulent materials are subjected to granulation with concentrated sulphuric acid added separately into a rotating pan granulator. The chemical processes taking place with various materials are considered, special attention being given to volatilization of chlorine and fluorine. The material presented includes that obtained in promising experiments with an electrically-heated granulator. The methods developed and tested are suitable for use in lead, zinc, copper-smelting and other works for the extraction of non-ferrous and rare metals from dusts and enable the sulphating process to be applied rapidly in industry.

1/2

136-7-5/22

2/2 There are 2 tables.

ASSOCIATION:
(VNIItsvetmet).

AVAILABLE: Library of Congress

Tsyb P.P.

AUTHORS Lysenko V.I., Tsyb P.P., 32-7-7/49

TITLE On the Polarographic Determination of Gallium.
(K voprosu polyarograficheskogo opredeleniya galliya - Russian)

PERIODICAL Zavodskaya Laboratoriya, 1957, Vol 23, Nr 5, pp 794-796 (U.S.S.R.)

ABSTRACT The polarographing of gallium was brought about in ammonia-sulphuric acid and an ammonium basis containing chlorine.Hydrochloric hydrazine,the ascorbin acid and sodium sulphite with gelatine were recommended as substances which neutralize the effect of oxygen.The latter of those substances cause a 38% increase of the gallium reaction. A more practical suggestion would be to blow hydrogen through the solutions whereby the nitrogen is removed and the gallium reaction increased by 30%.In this investigation a comparison between the calorimetric,the fluorescent and the polarigraphic method is made; the results of the methods are summarized in a table.
In conclusion the following was shown:
1) the method mentioned above was proven by this experiment.
2)the effects of ammonia,of ammonium sulphate and ammonium chloride upon the maximum limit of current during the polarographing of gallium salt was explained.
3) with a content of gallium of more than 1o mg/l sodium sulphite and gelatine are used for the neutralization of the effect of oxigen.It is,however,recommendable to remove the oxygen by blowing hydrogen through the solution.

Card 1/2

On the Polarographic Determination of Gallium. 32-7-7/49

ASSOCIATION All-Union Scientific Research Institute for Mining Metallurgy. (Vsesoyuznyy nauchno-issledovatel'skiy gornometallurgicheskiy institut)

AVAIIABLE Library of Congress.

Card 2/2

S/137/63/000/002/013/034
A006/A101

AUTHORS: Okonishnikov, A. M., Tsyb, P. P., Ponomarev, V. D., Dubina, L. A.

TITLE: Investigating the process of thallium cementation on zinc dust from sulfate solutions

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 2, 1963, 30, abstract 2G165 ("Sb. tr. Vses. n.-i. gornometallurg. in-t tsvetn. met.", 1962, no. 7, 163 - 171)

TEXT: The authors investigated the effect of the following factors upon the rate and degree of Tl precipitation during its cementation with Zn-dust: consumption of Zn-dust, its coarseness, intensity of mixing, temperature and acidity of the solution. Optimum conditions of Tl precipitation are established: acidity of the solution within pH 3 - 4; or alkalinity within pH 12 - 13; temperature about 60°C; duration 60 minutes at intensive stirring. At a 12 mg/l concentration of Tl in the solution the dust consumption exceeds that of thallium by a factor of 500; and at 100 mg/l and more by a factor of 100. The expediency is shown of turning the sponge for cementation one or two times, since

Card 1/2

S/137/63/000/002/013/034
A006/A101

Investigating the process of...

the sponge is then enriched by a factor of 2 - 3 and the precipitation degree decreases only to 75%.

G. Svodtseva

[Abstracter's note: Complete translation]

Card 2/2

S/137/63/000/002/034/034
A006/A101

AUTHORS: Plotnikov, V. I., Gorokhvodatskaya, R. I., Tsyb, P. P.

TITLE: Co-precipitation of indium with sulfides of some metals in sulfide-alkaline media

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 2, 1963, 15, abstract 2K84 ("Sb. tr. Vses. n.-i. gornometallurg. in-t tsvetn. met.", 1962, no. 7, 289 - 295)

TEXT: To a solution containing In chlorides and the solution of another test metal, an excess of the Na_2S solution was added and filled up with water up to 100 ml. The mixture was stirred at a speed of 250 rpm, the precipitate was separated by centrifuging. The amount of In remaining in the solid phase was calculated from the radioactive aliquot portion of the solution. An In^{114} radioisotope was used. It was established that in the Na_2S solution at a concentration as high as 1 n. and more, In is fully transferred into the solution. In the presence of Cu, Cd and Zn, considerable co-precipitation of In with sulfides of these metals takes place. If the Zn content exceeds the In content, the latter

Card 1/2

S/137/63/000/002/034/034
A006/A101

is fully precipitated. A compound of composition $In_2S_3 \cdot 4ZnS$ is formed. With higher In concentration in the solution, the solubility of Cu and Cd sulfides in the Na_2S solution increases. In the joint presence of Fe and In in the solution, full Fe precipitation takes place if Na_2S solution is added, and In remains in the solution. This can be used for the separation of Fe and In. Sn as well as In do not co-precipitate with Fe_2S_3. Experiments were made on the precipitation of Sn with ZnS. It is shown that in the presence of ZnS, Sn and In can not be separated with the aid of Na_2S.

N. Gertseva

[Abstracter's note: Complete translation]

LYSENKO, V.I.; TSYB, P.P.

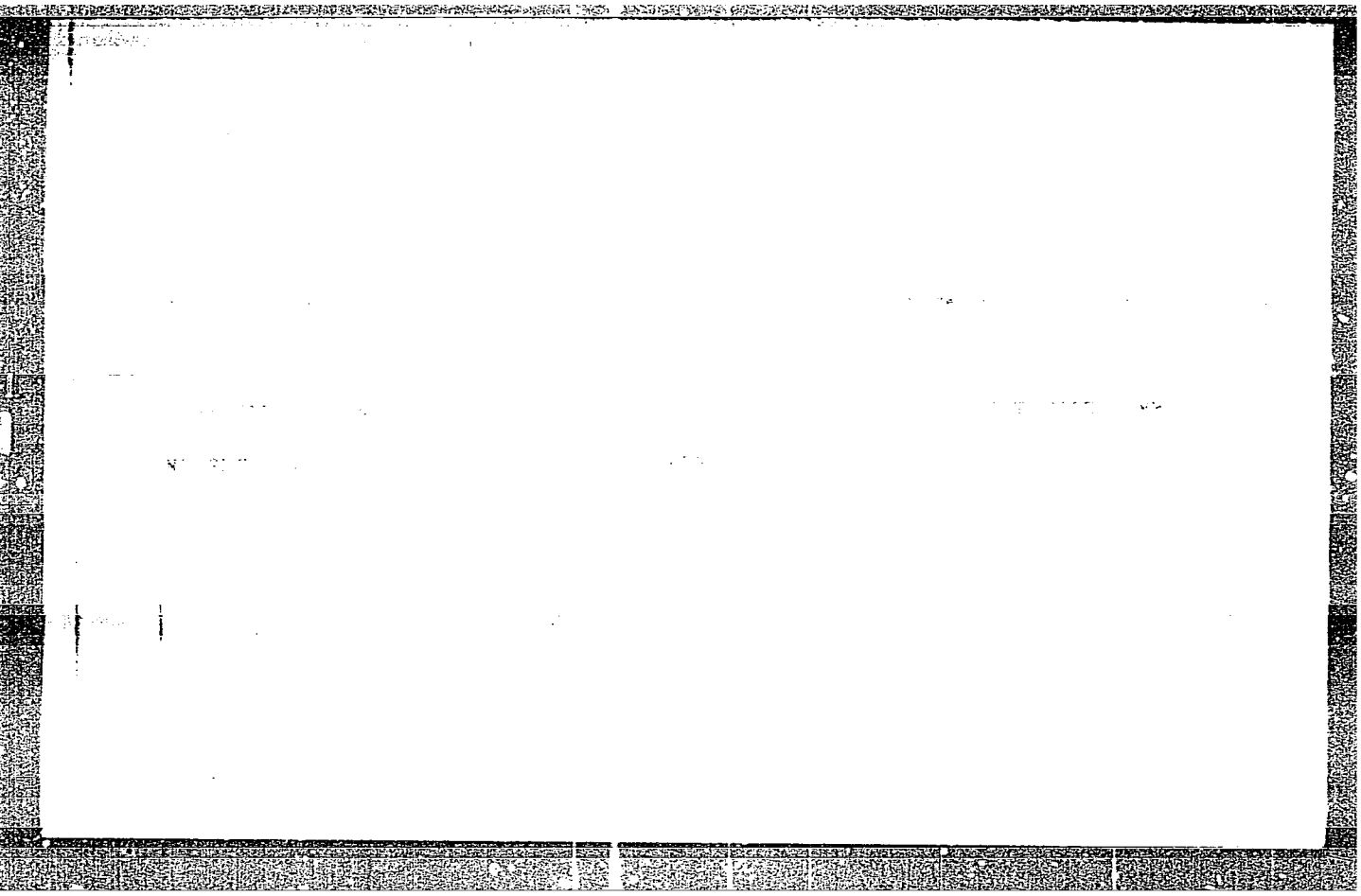
Process of removing microimpurities from gallium. Zhur. prikl. khim. 38 no.3:488-494 Mr '65. (MIRA 18:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy gornometallurgicheskiy institut tsvetnykh metallov. Submitted November 28, 1962.

SHURNIKOV, A.F., TSYB, I.F.; TUSHKO, A.G.; FISHMAN, N.A.; FEDULOVA, V.T.

Sulfurization method of extracting nonferrous and rare metals from lead cake. TSvet. met. 38 no.9:36-41 S '65.
(MIRA 18:12)

chemical refining of molten gallium in an alkaline solution with simultaneous



APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001757310004-3"

TSYBA, F. M. (g. Shakhty)

Protecting mine workings from undermining and tapped seams.
Ugol' 38 no.4:23-24 Ap '63. (MIRA 16:4)

(Donets Basin—Coal mines and mining)

POTOTSKAYA, I.V.; TSYBA, N.P.

Primary production of plankton in TSimlyansk Reservoir.
Dokl. AN SSSR 155 no. 3:680-682 Mr '64. (MIRA 17:5)

1. Volgogradskoye otdeleniye Gosudarstvennogo nauchno-issledovatel'skogo instituta ozernogo i rechnogo rybnogo khozyaystva.

S/153/62/005/006/007/015
E075/E336

AUTHORS: Tsybasov, V.P. and Petrovich, V.F.

TITLE: The synthesis of dinitro-compounds from nitro-olefins and nitroparaffins

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Khimiya i khimicheskaya tekhnologiya, v. 5, no. 6, 1962, 942 - 944

TEXT: New dinitro compounds (2,4-dinitrohexane, 2,4-dinitroheptane, 3,5-dinitrooctane, 3,5-dinitroheptane, 4,6-dinitrononane) were synthetized from α-nitroolefins and nitroparaffins, as follows:

$$R - \underset{\displaystyle NO_2}{\underset{|}{C}} = CH_2 + R_1 - CH = \overset{O}{\overset{\nearrow}{N}}\!\!\searrow\!\!\underset{ONa}{} \longrightarrow R - \underset{\displaystyle N \nearrow O \atop \displaystyle ONa}{\overset{\|}{C}} - CH_2 - \underset{\displaystyle NO_2}{\underset{|}{CH}} - R_1$$

$$\xrightarrow{CH_3COOH} R - \underset{\displaystyle NO_2}{\underset{|}{CH}} - CH_2 - \underset{\displaystyle NO_2}{\underset{|}{CH}} - R_1 \quad .$$

Card 1/2

The synthesis of ....

S/153/62/005/006/007/015
E075/E336

A series of homologous 2-nitro-1-en-olefins was prepared by the Buckley and Scaife method (J. Chem, Soc., 1471, 1947), i.e. dehydration of the corresponding nitro-alcohols with phthalic anhydride. The yields of the dinitro compounds ranged from 30 to 50%. There are 2 tables.

ASSOCIATION: Kafedra obshchey khimii, Leningradskiy mekhanicheskiy institut (Department of General Chemistry, Leningrad Mechanical Institute)

SUBMITTED: July 20, 1961

Card 2/2

TSYB, P.P.; MAL'TSEV, V.I.

Process of indium refining by the removal of microimpurities by electrolysis with mercury electrodes. Zhur.prikl.khim. 35 no.7:1565-1570 Jl '62. (MIRA 15:8)
(Indium) (Electrolysis)

S/080/62/035/007/011/013
D202/D307

AUTHORS: Tsyb, P.P. and Mal'tsev, V.I.

TITLE: Investigating the purification of indium from micro admixtures by electrolysis with mercury electrodes

PERIODICAL: Zhurnal prikladnoy khimii, v. 35, no. 7, 1962, 1565-1570

TEXT: The aim of this study was to establish the possibility of indium purification by using a multistage electrolyzer, constructed by VNIITSVETMET, which allows several anodic and cathodic processes to be performed in a single operation. The authors were particularly concerned with the elimination of Cd and Tl, as it was previously found that these metals cannot be separated from In amalgam by electrolysis in an H_2SO_4 electrolyte, having potentials very similar to that of In. The authors tested the addition of such compounds which can form sparingly soluble or complex compounds with these elements (disodium salt of EDTA, tartaric acid, Seignette salt, phosphoric acid and KI). KI exhibited the most favorable effect, its

Card 1/2

presence in the electrolyte lowering the Cd and Tl potentials to more electronegative values and not affecting the In potential. The amounts of KI used varied from 0.3 to 1.2 g mol/l. In this way a method of separating Cd and Tl, as well as all other impurities from In in a single operation has been found. The resulting In is 99.9993 - 99.9998% pure. There are 1 table and 5 figures.

SUBMITTED: May 15, 1961

Card 2/2

S/137/62/000/003/054/191
A006/A101

AUTHORS: Tsyb, P. P., Getskin, L. S., Batyuk, A. G.

TITLE: Processing of dusts and sublimates of non-ferrous metallurgy plants with complex extraction of non-ferrous and rare metals

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 3, 1962, 29 - 30, abstract 3G198 (V sb. "Issled. po obogashcheniyu i tekhnol. polezn. iskopayemykh", Moscow, Gosgeoltekhizdat, 1961, 123 - 131)

TEXT: The new method of processing dusts and sublimates from non-ferrous metallurgy plants consists in the granulation of dust materials with strong H_2SO_4 in a rotating cup-shaped granulator. The dust and the acid are separately supplied to the granulator where they are thoroughly mixed; as a result granules of up to 5 mm in diameter are being formed. The granules obtained are heat-treated at 300 - 350°C in a fluidized bed furnace. During the granulation of dust and sublimates with 110% strong H_2SO_4, the mass is heated to 150 - 200°C on account of the exothermal reaction heat. Pb, Cd and Zn then transform into sulfate forms by 96 - 98%. F and Cl are sublimated to 70 - 80 and 60 - 80% respectively, and As volatilization is 10 - 15%. At this processing method, In and Ti transform into sulfate

Card 1/2

S/137/62/000/003/054/191
A006/A101

forms and remain practically completely in the sulfate products. Te alsc remains in the sulfate product. Se is sublimated (by 50 - 90%) and is practically fully collected. The Se content in the sublimates is 2 - 3%. After granulation of the sublimates with H_2SO_4, the granules are leached out with waste Zn-electrolyte. In and Ge remain then completely in the Pb-cake. At an additional acid leaching, In and Ge are extracted and Zn, Cd and As are additionally extracted. Furthermore, the processing of solutions for the purpose of extracting non-ferrous and rare metals is made by the same scheme as the processing of solutions obtained after leaching out the sulfating products.

G. Svodtseva

[Abstracter's note: Complete translation]

29424
S/081/61/000/017/073/166
B101/B102

183100 1521 1087 1454

AUTHORS: Tsyb, P. P., Getskin, L. S., Vartanyan, A. M., Fel'dman, V. G., Anosova, T. V., Akylbekov, A. A., Levina, A. A., Chepik, M. N.

TITLE: Extraction of indium from dusts of lead plants

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 17, 1961, 329, abstract 17K150 (Sb. nauch. tr. Vses. n.-i. gornometallurg. in-t tsvetn. met., no. 6, 1960, 377-388)

TEXT: Indium-containing dusts of lead plants are granulated with strong H_2SO_4, and the resulting granules are thermally treated in a pseudoliquid layer in a furnace at 300-350°C in order to sublimate most of the As. The hydrates, including that of indium, are precipitated by adding ZnO to the sulfuric acid solution. Subsequently, As is washed out with 10% NaOH, and the residue is dissolved in H_2SO_4 in order to remove Pb. Cu is removed from the solution by cementation with cast-iron filings, after which In is precipitated with NaOH solution. The resulting concentrate,

Card 1/2

29424
S/081/61/000/017/073/166
B101/B102

Extraction of indium from ...

which contains 2-8% of In, is again dissolved in H_2SO_4, As and Sb are cemented with cast-iron filings, In is again precipitated with NaOH solution, and the precipitate is dissolved in HCl. From this solution, In is cemented on Al plates. The resulting sponge is treated with dilute H_2SO_4, from which indium is precipitated by neutralizing with NH_3. The resulting indium hydroxide is dissolved in HCl, and indium is again cemented on Al plates. Thus, a raw product with 97-98% of In is obtained, which is purified by dissolution in Hg and by electrolysis of the amalgam. About 60% of In is thus extracted from the initial dust. Cu, Te, Tl, Cd, and Pb are also obtained when the dust is processed. [Abstracter's note: Complete translation.]

Card 2/2

18 3100

25426
S/137/61/000/006/020/092
A006/A101

AUTHORS: Sayun, M.G., Tsyb, P.P.

TITLE: On indium potentials in electrolysis of its sulfate solutions with mercury electrode

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 6, 1961, 20, abstract 60169 ("Sb. tr. Vses. n.-i. gornometallurg. in-t tsvetn. met", 1959, no.5, 221 - 229)

TEXT: The authors studied In potentials in electrolysis of its sulfate on amalgams with high In content, in dependence on its concentration in amalgams, D and temperature. Ten ml Hg or In-amalgam were used as one electrode and Pt-wire as the second electrode. Amalgams with 0.01 and 0.1 g-atom In concentration per 1 l Hg were obtained by electrolysis; with 1, 5, 10, 20 and 30 g-atom In concentration per 1 l Hg, by dissolving In metal in Hg, at 20°C. The test temperature was 20, 50 and 80°C; D was 0.1; 0.5; 10; 30; 60 ma/cm^2. At D = 0.1 mamp/cm^2 the voltage on the electrolyzer terminals was <0.1 v. At D >5 mamp/cm^2 In and H_2 ions discharge simultaneously on the cathode; the process is accompanied by considerable polarization. With a higher In concentration in the amalgam, raised

Card 1/2

On indium potentials ...

25426

S/137/61/000/006/020/092
A006/A101

from 1 to 30 g-atom per 1 l Hg, the anode potential is shifted toward the side of negative values by 0.13 v and attains a value of - 0.43 v at low D and 20°C. At low D (0.1 mamp/cm^2) the values of the anode and cathode potentials coincide and differ only slightly from the potentials of pure In, when taking into account the In-concentration in the amalgam. If D increases from 1 to 100 mamp/cm^2, the anode potential is shifted toward the side of positive values by 0.1 v. The authors established also the dependence of the cathode potential, during electrolytic In-deposition, and of the anode potential, during electrolytic decomposition of the amalgam in a sulfuric acid solution, on the In concentration in the amalgam within 1 - 30 g-atom per 1 l Hg.

O. Svodtseva

[Abstracter's note: Complete translation]

Card 2/2

18 3110

25425

S/137/61/000/006/019/092
A006/A101

AUTHORS: Tsyb, P.P., Getskin, L.S., Vartanyan, A.M., Fel'dman, V.G., Anosova, T.V. Akylbekov, A.A., Levina, A.A., Cherick, M.N.

TITLE: Extracting indium from lead plant dusts

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 6, 1961, 19, abstract 6G166 ("Sb. nauchn. tr. Vses. n.-i. gornometallurg. in-t tsvetn. met", 1960, no. 6, 377 - 388)

TEXT: The authors describe a technological system of In extraction from dusts of lead production, using the method of dust sulfatizing at the beginning of the process. Extraction of In into 1-st class metal from the content in the initial dust (In 0.003 - 0.006%) is about 60%.

G. Svodtseva

[Abstracter's note: Complete translation]

Card 1/1

TSYB, P.P.; LEVINA, A.A.

Isolating tellurium from solutions by cementation with zinc dust.
TSvet. met. 33 no.7:61-65 Jl '60. (MIRA 13:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut tsvetnykh metallov.
(Tellurium) (Cementation (Metallurgy))

S/081/60/000/006/006/008
A006/A001

Translation from: Referativnyy zhurnal, Khimiya, 1960, No. 6, p. 361, # 23038

AUTHOR: Tsyb, P.P.

TITLE: Preparation of Indium Using the Amalgam Method

PERIODICAL: Sb. nauchn. tr. Vses. n.-i. gorno-metallurg. in-t tsvetn. met., 1958, No. 3, pp. 93-97

TEXT: A technological scheme is given for indium extraction from dust of the lead production. The modified amalgam method is used. After preliminary preparation a sponge was obtained which was dissolved in mercury. The amalgam obtained was decomposed in H_2SO_4 at D_a = 5-10 ma/cm^2 and an anode potential that did not attain the value necessary for indium oxidation. After separating the solution the electrolysis was continued and regulated in such a manner that the anode potential was $\leqslant$ 0.2 v; only In was passing over into the solution and its main portion was deposited on the cathode in the form of a sponge. The solution obtained was separated from the amalgam, indium was cemented to the

Card 1/2

Preparation of Indium Using the Amalgam Method

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zinc, the sponge and the cathode indium were pressed and remelted. The direct indium extraction from dust was ~ 80%.

M. Platkov

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

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SOV/136-59-10-6/18

AUTHORS: Getskin, L.S., Batyuk, A.G., Tsyb, P.P., Gorokhvodatskaya, R.I., Savrayev, V.P., Zinov'yev, V.P., Fel'dman, V.G., Bratchik, A.V. and Polulyakh, V.P.

TITLE: Mastering the Process of Sulphatizing Lead Dusts

PERIODICAL: Tsvetnyye metally, 1959, Nr 10, pp 35-42 (USSR)

ABSTRACT: The method of sulphatizing poly-metallic ores and concentrates was first developed in the Soviet Union by Professor A.Ye.Makovetskiy in 1923. Since then, a great deal of investigational work has been done in this connection. One variant of this method, so-called Makovetskiy-Gintsvetmet process, consisting of mixing the material with diluted (60%) sulphuric acid and treating the pulp in a cylindrical sulphatizator at 200°C, was put to test at a pilot plant (designed to treat 3 t of sulphide concentrate per day) at Ordzhonikidze. However, even after three years' operation, no means have been found to overcome serious difficulties associated with the formation of crust in the sulphatizator and with rapid corrosion of the equipment and of the gas system, due to the action of hot gases containing water and acid vapours. Work on this problem was resumed at VNIITsvetmet in 1955

Card 1/7

Mastering the Process of Sulphatizing Lead Dusts

and, as a result, a modified method was developed which, by now, has also been tested on a semi-industrial scale. The main difference between the new and the original method is the application of concentrated sulphuric acid which could not be used previously, owing to the fact that cementation of the dense pulp took place in the equipment used in the old process, ie in the mixer, re-pulper and sulphatizator. This difficulty was overcome by nodulizing the powder materials mixed with concentrated sulphuric acid in a pan granulator. Owing to the exothermic nature of the reactions taking place during the nodulizing process, the nodule temperature rises to 200°C or even higher and this ensures rapid distillation of chlorine and fluorine and accelerates sulphatization of the pulp components. The subsequent heating of the granules to 350°C (necessary to distill off arsenic and to complete the sulphatizing reactions) is carried out in a reactor, using the fluidized bed principle (Ref 1). The preliminary investigation was carried out in a large laboratory plant in which dusts from various lead and copper smelting plants were treated. On the basis of the

Mastering the Process of Sulphatizing Lead Dusts

results of this work, the staff of the Ust'-Kamenogorskiy Lead-Tin Combine in cooperation with VNIITsvetmet, designed and constructed a large pilot plant capable of treating 10 t of lead-bearing dusts per day. Its main components, ie the granulator shown diagrammatically in Fig 1 and the fluidized bed reactor illustrated in Fig 2, were constructed in the Combine workshops. The granulator, driven by a 14 kW electric motor, is equipped with a pan 1500 mm diameter and 250 mm deep, the axis of which is inclined to the horizontal at an angle of 30 to 60° and which rotates at the rate of 8 to 14 rev/min. Gases evolved during the process are removed through an exhaust hood. The application of concentrated sulphuric acid made it possible to use mild steel as the constructional material of the granulator, the inlet and outlet pipes and the ventilating system. The reactor shell (Fig 2) is also made of steel, lined inside with a single layer of a refractory brick; the active area of the hearth is 0.75 m^2, the height of the fluidized bed, 105 cm, the total height of the reactor being 3.5 m. The final product obtained in the fluidized bed reactor is discharged into a

Card 3/7

Mastering the Process of Sulphatizing Lead Dusts

stainless steel tank, from which it is pumped into mechanical agitators, where the sulphate product is leached out. The following are the main operations carried out in the hydro-metallurgical section: leaching out of the sulphate product, settling and washing the lead cake, precipitation of raw metals, removal of arsenic and iron from the solutions and extraction of cadmium. The lead dusts treated in the experimental pilot plant contained (%): 49.3 Pb, 16.3 Zn, 2.5 Cd, 0.5 Cu, 1.0 Fe, 5.3 As, 1.0 Cl and 0.2 F. The consumption of concentrated sulphuric acid in nodulizing this product varied between 55 and 62% of the weight of the dust which corresponded to 110% of the theoretically required quantity. (The authors point out here that if sulphuric acid of the concentration less than 92% is used, the nodulizing process is adversely affected, granules of low mechanical strengths are obtained, the quantity of distilled off chlorine, fluorine and arsenic is reduced and the output of the granulator is reduced.) With the granulator inclined at 55° and operating at 8.3 rev/min, 10 to 15 t of the dust was treated per day, the obtained

Mastering the Process of Sulphatizing Lead Dusts

product containing 80% of the -5 mm fraction. The proportion of dust carried away by the exhaust gases was comparatively small and amounted to 1% only; the quantity of gases evolved during the process was also small, owing to the low chlorine, fluorine and arsenic contents in the dust; the H_2S content in the gases varied between zero and 9 mg/m^3. The optimum temperature for sulphatizing the granules in the fluidized bed reactor was 350°C. The capacity of the reactor was 12 to 14 t/m^2/24 hr, the air consumption being 3000 m^3/hr. The granules remained in the reactor for more than two hours; however, it was found that the time necessary for the completion of the sulphatizing reaction and for the removal of 90% of arsenic, is approximately 45 min; consequently, it can be assumed that the productivity of the reactor could be increased, whereby its specific air consumption would be reduced. The solutions (including those obtained during washing and filtering the lead cake) resultant from the water leach of the sulphate product, contained (g/l): 37.9 Zn, 6.5 Cd; the washed lead cake contained (%): 0.52 Zn, 0.16 Cd, 64.3 Pb;

Card 5/7

Mastering the Process of Sulphatizing Lead Dusts

97% Zn and 95% Cd present in the dust was recovered in the solution; the recovery of Zn, Cd and Pb in the lead cake was 2.4, 4.8 and 98% respectively; the recovery of raw metals amounted to 74 to 93%; 80 to 90% arsenic was distilled off during the sulphatizing treatment; 80 to 85% chlorine and fluorine and 60 to 75% selenium was distilled off during both nodulizing and sulphatizing processes. After describing the dust-collecting process and various controlling equipment, the authors state their conclusions. (1) Difficulties experienced in the application of the sulphatizing process on an industrial scale have been overcome by using concentrated sulphuric acid and by nodulizing the pulp in a rotary pan granulator. (2) No signs of corrosion of the granulator, made of mild steel, have been observed during the test period; both the granulator and the fluidized bed reactor have been working continuously without any stoppages and the working conditions have been satisfactory. (3) The process, as outlined in the present paper, has been found to be very efficient regarding the degree of both the recovery of rare and non-ferrous metals present in the dust and the

Mastering the Process of Sulphatizing Lead Dusts

removal of the volatile components. (4) A necessary condition for ensuring efficient purification of the gases leaving the fluidized bed reactor is lowering the temperature of the gases to 25 to 30°C and the application of a wet system of dust collection. To comply with the sanitary regulations regarding the arsenic content in the exhaust gases, a supplementary cleaning operation in a wet electro-filter is necessary. (5) The application of the sulphatizing process for treating lead dust provides a convenient means of utilizing this complex material and can be recommended for adoption in all the lead plants in the Soviet Union. There are 2 figures, 1 table and 1 Soviet reference.

ASSOCIATIONS: VNIITsvetmet
Ust'-Kamenogorskiy svintsovo-tsinkovyy kombinat
(Ust'-Kamenogorskiy Lead-Zinc Combine)

SAYUN, M.G.; TSYB, P.P.

Electrolytic separation of indium, thalium, zinc, and cadmium and their determination from the same weighed portion. Zav.lab. 25 no.7:793-795 '59. (MIRA 12:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy gorno-metallurgicheskiy institut tsvetnykh metallov.
(Metals--Analysis) (Electrochemical analysis)

5(2)
AUTHORS: Sayun, M. G., Tsyb, P.P. SOV/32-25-7-7/50

TITLE: Electrolytic Separation of Indium, Thallium, Zinc, Cadmium and Their Definition From a Weighed-in Substance (Elektroliticheskoye otdeleniye indiya, talliya, tsinka i kadmiya i ikh opredeleniye iz odnoy naveski)

PERIODICAL: Zavodskaya laboratoriya, 1959, Vol 25, Nr 7, pp 793-795(USSR)

ABSTRACT: In the previous papers (Refs 1-3) the separation of In and Tl from several elements by means of an electrolysis with an Hg-electrode was described. Since Zn and Cd among other elements, have to be defined apart from In and Tl in the analysis of various products of heavy nonferrous metallurgy, the possibilities of applying the above mentioned method for the separation and determination of weighed-in In and Tl were investigated in the present case. In an electrolytic decomposition of an amalgam which contains the elements mentioned last, Zn will first of all change into the electrolyte, then follows the common dissolution of Cd, Tl and In. After that follows a potential jump to the value necessary for the oxidation of Cu and Fe. This fact was evaluated in the development of the present method. For the experiments carried out, samples of

Card 1/2

Electrolytic Separation of Indium, Thallium, Zinc, Cadmium and Their Definition From a Weighed-in Substance SOV/32-25-7-7/50

hydration products of a certain compound were used (Table 1). An already described electrolyzer was used (Ref 1). The given working method shows, among other things, that the Zn added to the solution was determined in a potentiometric or volumetric way. In was precipitated by means of ammonia, and after its resolution it was polarographically determined. In the separated filtrate Tl and Cd it was again polarographically determined. The achieved determination results are given (Table 2). The described method is recommended for the analysis of the extraction of rare elements as well as for the determination of In and Tl in the dust of the factories of heavy nonferrous metallurgy. The course of the analysis is given. There are 2 tables and 4 Soviet references.

ASSOCIATION: Vsesoyuznyy-nauchno-issledovatel'skiy gorno-metallurgicheskiy institut tsvetnykh metallov (All-Union Mining and Metallurgical Scientific Research Institute for Nonferrous Metals)

TSYB, P.P.

18(5,4,3) PHASE I BOOK EXPLOITATION SOV/2094

Akademiya nauk Kazakhskoy SSR. Institut metallurgii i obogashchenlya

Trudy, t. 1 (Transactions of the Institute of Metallurgy and Ore Dressing, Kazakh SSR Academy of Sciences, Vol 1) Alma-Ata, Izd-vo AN Kazakhskoy SSR, 1959. 159 p. 1,225 copies printed.

Ed.: Yu. N. Kurnatovy, Tech. Ed.: Z.P. Borokina; Editorial Board: V.D. Ponomarev (Resp. Ed.), B.N. Lebedev, A.N. Grigorovich, L.P. Ni, R.A. Isakova, I.R. Polyvyannyy (Resp. Secretary), and Ye. I. Ponomareva.

PURPOSE: This book is intended for metallurgists and metallurgical engineers.

COVERAGE: This is a collection of articles dealing with various aspects of process metallurgy, principally nonferrous, and with related matters such as treatment of ore concentrates, properties of slags, etc. Topics discussed include precipitation of copper from slags, extraction of arsenic from speiss, recovery of rare metals from smelting dust, electrolytic precipitation of lead and zinc, and drying of lead-zinc concentrates. Three articles are concerned with the metal rhenium. The articles are accompanied by Soviet and non-Soviet references.

TABLE OF CONTENTS:

Card 1/5

POHOMAREVA, Ye.I.; TSYB, P.P.; SHALAVINA, Ye.L.; BATYUK, A.G.; MENZHULIN, Yu.N.

Recovering nonferrous and rare metals from Chimkent lead refinery smelting furnace dusts. Trudy Inst.met. i obogashch. 1:76-87 '59. (MIRA 12:5)
(Chimkent--Lead--Metallurgy) (Nonferrous metals--Metallurgy)

SAYUN, M.G.; TSYB, P.P.; LATKHER, K.Kh.

Separating zinc from indium by electrolysis using a mercury electrode.
Zav. lab. 24 no.12:1436-1439 '58. (MIRA 12:1)

1.Gorno-metallurgicheskiy institut tsvetnykh metallov.
(Zinc--Analysis) (Indium--Analysis) (Electrochemical analysis)

SOV/136-58-8-9/27

AUTHOR: Tsyb, P.P.

TITLE: Use of the Amalgam Method in the Metallurgy of Non-Ferrous and Rare Metals (Primeneniye amal'gamnogo metoda v metallurgii tsvetnykh i redkikh metallov).

PERIODICAL: Tsvetnyye Metally, 1958, Nr.8, pp.40-45 (USSR)

ABSTRACT: The author suggests that lack of knowledge of its possibilities is hindering the adoption of the advantageous amalgam method for winning non-ferrous and rare metals. He outlines the theory of the method and reviews a series of investigations (Refs.5-18) in which he was the sole worker or in which he participated. He tabulates and shows graphically the cathodic (Fig.1) and anodic (Fig.2) potentials against current density, and discusses the significance and utilization of these data. He shows the changes with time in the anode potentials during the electrolytic decomposition of amalgams of single metals (zinc, thallium, cadmium, tin, bismuth, cobalt and iron) for a wide range of current densities (16-154 ma/cm^2) and temperatures (20-80°C) (Fig.3) and of pairs of metals

Card 1/2

Use of the Amalgam Method in the Metallurgy of Non-Ferrous and Rare Metals.

(Fig.4). As examples of the possibilities of the amalgam method the author gives the production of thallium from technical solutions and of indium from lead-smelting by-products: for the latter 80-% recovery is possible for an initial indium content in the lead-smelting dust of 0.003-0.006%. There are 4 figures, 1 table and 18 references, of which 14 are Soviet, 2 German and 2 English.

ASSOCIATION: VNIItsvetmet

1. Rare earth elements--Separation 2. Rare earth elements--Electrolysis
3. Metals--Electrolysis

Card 2/2

5(2)

AUTHORS: Sayun,M.G., Tsyb,P.P., Latkher, K.Kh. SOV/32-24-12-7/45

TITLE: Separation of Zinc From Indium Using Electrolysis With a Mercury Electrode (Otdeleniye tsinka ot indiya elektrolizom s rtutnym elektrodom)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol 24, Nr 12, pp 1436-1439 (USSR)

ABSTRACT: The possibility of applying the amalgam method in the separation of zinc from indium is shown. This method is widely used analytically and has been applied to the analysis of several metals (Ref 1). In the experiments reported here the experimental apparatus (Table 1) included a mercury or amalgam electrode and a platinum spiral as the second electrode. The electrodes were separated by a distance of 3 cm and the electrolyte volume was 80 ml. The zinc determination was carried out using the volumetric ferrocyanide method and the radiometric method using radioactive Zn^{65} isotopes with a half-life periode of 250 days. Indium was determined polarographically. A MS-7 counter was used in the radiometric determination. Several polarograms (Fig 2) are given to explain the possibility of separating zinc from indium electrolytically as in the present experiments. From the experimental results obtained it may be concluded that a

Card 1/2

SOV/32-24-12-7/45

Separation of Zinc From Indium Using Electrolysis With a Mercury Electrode

separation of zinc from indium is possible in an anodic polarizat... i.e. in electrolytic decomposition. A table of experimental results shows that at 20° 8.1γ of the 9γ of zinc in the amalgam goes into solution after 5 minutes, while with an increase in temperature to 80° the entire amount of zinc present goes into solution. An increase in the indium concentration in the amalgam makes the zinc dissolution more difficult. An analytical procedure was worked out according to the results of the studies made. There are 3 figures, 1 table, and 1 Soviet reference.

ASSOCIATION: Gorno-metallurgicheskiy institut tsvetnykh metallov (Mining-Metallurgical Institute for Nonferrous Metals)

Card 2/2

TSYB, P.P.

Using the amalgamation method in nonferrous and rare metal metallurgy. TSvet. met. 31 no.8:40-45 Ag '58. (MIRA 11:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut tsvetnykh metallov. (Nonferrous metals--Metallurgy) (Metals, Rare and minor--Metallurgy) (Amalgamation)

KOZLOVSKIY, M.T.; TSYB, P.P.; SPERANSKAYA, Ye.F.

Analgam methods for separation and determination of nonferrous metals. Trudy Kom. anal. khim. 4:255-262 '52. (MIRA 11:6)
(Nonferrous metals)
(Amalgams)